

ABSTRACT

A device controller for connecting a function engine that supports an application to a packet-switched serial bus to which a host device is connected. The interface device includes a serial interface engine for transferring packets between the serial bus and the function engine and an interfacing device that employs a plurality of state machines in a device configuration module. The state machines of the device configuration module operate to configure the interfacing device and make that configuration known to the host. Additionally, for each interface of the function engine that is a group of state machines, at least one of which transfers data between the serial interface engine and the function engine. In one embodiment the serial bus is the USB and the configuration module conforms to the configuration protocol of the USB. As an additional aspect of the invention multiple configurations are supported by the device configuration module. These multiple configurations are user-selectable configurations that can only be changed at configuration time. Once configured the device controller maintains the configurations through out its operation until reset and re-configured. Multiple configurations are provided to minimize the number of different device controllers needed in inventory and to provide a single, flexible device for various controller applications.